MANUAL OF NAVAL PREVENTIVE MEDICINE

- Chapter 6
- Water Supply Afloat

Responsibilities

- NAVSEASYSCOM- design, construction, and maintenance of shipboard potable water systems.
- NAVFACENGCOM-ship to shore potable water connections, and provide potable from approved sources while at naval facilities

Responsibilities

- Chief, BUMED-establish and promulgate health standards
- CO / Craft master- establish water sanitation bill.
- contains procedures for receipt, transfer, treatment, storage, distribution, surveillance.

RESPONSIBLITIES

- Engineering Dept- (WATER KING), responsible to the CO for implementing the requirements of NAVSEASYSCOM
- includes:
- supply and treatment of all potable water and the system components.
- Also responsible for daily chloride and pH testing at the tank.

RESPONSIBLITIES

- MDR- collects samples for bacteria testing
- Also conducts daily chlorine residual testing throughout the distribution system
- Reports directly to the CO

SOURCES FOR POTABLE WATER

- Avoid making while in harbors or from polluted seawater (ships in tight formation)
- Distillation or Reverse Osmosis
- Shore to ship
- Ship to ship

USES FOR POTABLE WATER

- Drinking
- Cooking
- Laundry
- Medical
- Personal hygiene

EXCEPTIONS

- Seawater- used for fire mains, ship decontamination, and MSDs
- Specific garbage grinders, used in sculleries, approved by BUMED

USAGE REQUIREMENTS

- Two gallons per day, per man in emergency or unusual situations
- For new ship constructions, 50 gallons per day per man

RECEIPT AND TRANSFER

- Testing must be done prior to any hose connections
- MDR must check chlorine levels, and notify Eng Dept (Water King)

- If water taken aboard does not meet the standards, it must be held in storage, treated, and tested before distributed through the system

RECEIPT AND TRANSFER

- Potable water risers
- a) 18 inches above deck and turned down
- b) properly labeled, color-coded dark blue, and fitted with a screw cap and keeper chain

WATER PRODUCTION PLANTS

- Two types:
- a) Distillation-uses steam, waste heat, or vapor compression
- b) Reverse Osmosis-uses a series of strainers, separators, and cartridges that remove particles

WATER TANKS

- Used only to store potable water
- In emergencies they may be filled with ballast water to save the ship

Vents / Overflow Lines- used to reduce possibility of contamination

Openings must be covered with 18-mesh, and can not terminate in food service spaces, or spaces containing electrical equipment

MEASUREMENT

- Automatic gauges
- Petcocks
- Sounding tubes (rod remains in the tube)
- Sounding tapes- must be sanitized at 100ppm in a chlorine solution for 2 minutes prior to each use

PIPING

- Any piping passing through non-potable tanks must be surrounded by a sloped self draining pipe tunnel

REPAIRS

- Break or compromise in the system, or entrance into a tank: entire system must be cleaned, flushed, and tested prior to use.
- MDR must be notified of this by the Eng Dept

LABELING-COLOR CODING

- Sounding tubes-will have identification plate, with the cap color-coded dark blue
- Sounding tapes-handle colored dark blue, or labeled “POTABLE WATER USE ONLY”
- Valves-warning plate labeled’ POTABLE WATER ONLY” in ¼ inch high letters

LABELING-COLOR CODING

- Potable water hoses- labeled “POTABLE WATER ONLY” in 1 inch letters every ten feet.
- End couplings dark blue
- Potable water piping passing through any space must be labeled with the type of service and arrows with the direction of flow

STORAGE LOCKERS

- Labeled “POTABLE WATER HOSE”
- 18 inches off the deck and vermin proof
- Hoses must be capped when not in use
- Instructions on disinfection of the hoses and risers must be maintained in the locker

DISINFECTION

- .2ppm measured at the tank
- Trace amounts must be found throughout the system.
- Chlorine- calcium hypochlorite is used on ship.
- Found in 6oz bottles.
- Very corrosive and must be stored as Haz Mat

DISINFECTION

- Chlorine can not be stored with any oxidizable materials
- Keep in a cool, dry, well-ventilated space not to exceed 100 degrees F
- No more than 48 6oz bottles can be stored together
- Loses strength with age

DISINFECTION

- Must be stored in a locker or bin labeled: HARZARDOUS MATERIAL CALCIUM HYPERCHLORITE in red letters on a white background

DISINFECTION

- Bromine- provided in cartridges
- Slightly corrosive
- Kept in clean, dry, well-vented storerooms
- Require hazardous material warning plate
- Shelf life of two years

DISINFECTION

- .2ppm from approved sources
- 2.0ppm from unapproved sources

DISINFECTION of TANKS

- Apply a 200ppm solution to all tank surfaces
- Flush inlet / outlet pipes with a 10ppm solution
- Must have 30 minute contact time
- Refill tank and test for chlorine level

DISINFECTION OF HOSES, RODS, TAPES

- Hoses-100ppm solution for 2 minutes, then flush with potable water
- All connectors- disinfect with 100ppm solution with a 2 minute contact time.
- Flush all shore water sources for 30 seconds prior to hook up

QUESTIONS

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